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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Takashi Ikemoto

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EXAMINER

CULLEN, SEAN P

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,306	Applicant(s) IKEMOTO ET AL.	
	Examiner Sean P. Cullen, Ph.D.	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuneyoshi et al. (JP 05222235, see machine translation) in view of Kasamatsu et al. (U.S. 6,605,386 B1).

Regarding claim 1, Tsuneyoshi et al. discloses a polyolefin microporous membrane (see fine porous film which consists of polyolefin, [0001] having:

- a membrane thickness of 5 to 100 μm (see thickness, [0039]),
- a void content of 35 to 95% (see void content, [0039]),
- a gas transmission rate of 50 to 250 sec/100 cc (see Embodiments 1-3, Table 2),
- a maximum pore size determined by the bubble point method of 0.05 to 0.75 μm (see aperture distribution, [0039]), and
- a ratio of the maximum pore size to the average pore size of 1.00 to 1.50 (see aperture distribution, [0039]).

Kondo et al. does not explicitly disclose:

- a piercing strength of 3.5 to 20.0 N/20 μm ,
- a maximum pore size of 0.08 to 0.20 μm ,
- a ratio of the maximum pore size to the average pore size of 1.00 to 1.40.

Kasamatsu et al. discloses a polyolefin microporous membrane (7) having a piercing strength of 3.5 to 20.0 N/20 μm (see 411 g/ μm , C16/L60-64) to prevent short-circuiting and

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increase safety (C6/L43-50). Tsuneyoshi et al. and Kasamatsu et al. are analogous art because they are directed to microporous membranes used as separators for lithium secondary batteries. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the polyolefin microporous membrane of Tsuneyoshi et al. with a piercing strength of 3.5 to 20.0 N/20 μm as taught by Kasamatsu et al. to prevent short-circuiting and increase safety.

Although Tsuneyoshi et al. does not explicitly disclose a maximum pore size of 0.08 to 0.20 μm , Tsuneyoshi et al. does disclose an overlapping range of 0.05 to 0.75 μm . Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because selection of overlapping portion of ranges has been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ 549.

Although Tsuneyoshi et al. does not explicitly disclose a ratio of the maximum pore size to the average pore size of 1.00 to 1.40, Tsuneyoshi et al. does disclose an overlapping range of 1.00 to 1.5. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because selection of overlapping portion of ranges has been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ 549.

Regarding claim 2, modified Tsuneyoshi et al. discloses all claim limitations set forth above and further discloses a polyolefin microporous membrane:

- which is for use in electronic components (see battery, [0060]).

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Regarding claim 3, Tsuneyoshi et al. discloses a polyolefin separator (see separator, [0060]) for nonaqueous electrolyte batteries (see lithium battery, [0060]):

- comprising a polyolefin microporous membrane having:
 - a membrane thickness of 5 to 100 μm (see thickness, [0039]),
 - a void content of 35 to 95% (see void content, [0039]),
 - a gas transmission rate of 50 to 250 sec/100 cc (see Embodiments 1-3, Table 2),
 - a maximum pore size determined by the bubble point method of 0.05 to 0.75 μm (see aperture distribution, [0039]), and
 - a ratio of the maximum pore size to the average pore size of 1.00 to 1.50 (see aperture distribution, [0039]).

Tsuneyoshi et al. does not explicitly disclose:

- a piercing strength of 3.5 to 20.0 N/20 μm ,
- a maximum pore size of 0.08 to 0.20 μm ,
- a ratio of the maximum pore size to the average pore size of 1.00 to 1.40.

Kasamatsu et al. discloses a polyolefin microporous membrane (7) having a piercing strength of 3.5 to 20.0 N/20 μm (see 411 g/ μm , C16/L60-64) to prevent short-circuiting and increase safety (C6/L43-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the polyolefin microporous membrane of Tsuneyoshi et al. with a piercing strength of 3.5 to 20.0 N/20 μm as taught by Kasamatsu et al. to prevent short-circuiting and increase safety.

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Although Tsuneyoshi et al. does not explicitly disclose a maximum pore size of 0.08 to 0.20 μm , Tsuneyoshi et al. does disclose an overlapping range of 0.05 to 0.75 μm . Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because selection of overlapping portion of ranges has been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ 549.

Although Tsuneyoshi et al. does not explicitly disclose a ratio of the maximum pore size to the average pore size of 1.00 to 1.40, Tsuneyoshi et al. does disclose an overlapping range of 1.00 to 1.5. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because selection of overlapping portion of ranges has been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ 549.

Regarding claim 4, Tsuneyoshi et al. discloses a nonaqueous electrolyte battery (see lithium battery, [0060]):

- characterized in that the polyolefin microporous membrane is used as a separator (see separator, [0060]) having:
 - a membrane thickness of 5 to 100 μm (see thickness, [0039]),
 - a void content of 35 to 95% (see void content, [0039]),
 - a gas transmission rate of 50 to 250 sec/100 cc (see Embodiments 1-3, Table 2),
 - a maximum pore size determined by the bubble point method of 0.05 to 0.75 μm (see aperture distribution, [0039]), and

- a ratio of the maximum pore size to the average pore size of 1.00 to 1.50
(see aperture distribution, [0039]).

Tsuneyoshi et al. does not explicitly disclose:

- a piercing strength of 3.5 to 20.0 N/20 μm ,
- a maximum pore size of 0.08 to 0.20 μm ,
- a ratio of the maximum pore size to the average pore size of 1.00 to 1.40.

Kasamatsu et al. discloses a polyolefin microporous membrane (7) having a piercing strength of 3.5 to 20.0 N/20 μm (see 411 g/ μm , C16/L60-64) to prevent short-circuiting and increase safety (C6/L43-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the polyolefin microporous membrane of Tsuneyoshi et al. with a piercing strength of 3.5 to 20.0 N/20 μm as taught by Kasamatsu et al. to prevent short-circuiting and increase safety.

Although Tsuneyoshi et al. does not explicitly disclose a maximum pore size of 0.08 to 0.20 μm , Tsuneyoshi et al. does disclose an overlapping range of 0.05 to 0.75 μm . Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because selection of overlapping portion of ranges has been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ 549.

Although Tsuneyoshi et al. does not explicitly disclose a ratio of the maximum pore size to the average pore size of 1.00 to 1.40, Tsuneyoshi et al. does disclose an overlapping range of 1.00 to 1.5. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference

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because selection of overlapping portion of ranges has been held to be a prima facie case of obviousness. In re Malagari, 182 USPQ 549.

Response to Arguments

3. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant's arguments with respect to the present invention achieving a good withstand voltage due to a combination of a specific maximum pore size with a specific ratio of maximum pore size to average pore size have been fully considered but they are not persuasive.

Regarding applicants' argument that this is clear from a comparison of respective Examples at Table 2 of the present specification to Examples 10 and 14 that fall outside the claimed ranges, the withstand voltages of Example 10 and Comparative Example 5 are the same as the withstand voltage of Examples 11 and 13, which fall within the claimed ranges. Further, no evidence has been submitted that the differences in the withstand voltages are statistically significant. Therefore, it is not clear from a comparison of respective Examples at Table 2 of the present specification to Examples 10 and 14 that a good withstand voltage can be only achieved within the claimed ranges

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Cullen, Ph.D. whose telephone number is 571-270-1251. The examiner can normally be reached on Monday thru Thursday 6:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. P. C./

Examiner, Art Unit 1725

/Basia Ridley/

Supervisory Patent Examiner, Art Unit 1725